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ABSTRACT

Suggestions for strengthening information sharing and expertise are needed, especially in view of the establishment of new organizational capacities for economic and technical cooperation by developing countries in the southern hemisphere. In the immediate future, the bargaining capacity of countries will be weakened by the lack of initiative by countries to share information science, and by the lack of an effective organization for serving information needs in a systematic way. At both national and intergovernmental levels, an enlargement of information capacity by developing nations may improve the situation; but serious consideration must be given to how electronic resources can be deployed most effectively. The present enthusiasm for informatics requires too much national planning and intergovernmental cooperation. Information systems themselves will not promote growth and development, nor will they strengthen the bargaining power of developing countries in the southern hemsisphere. Skepticism and critical reflection may direct information resources toward better service, thereby forestalling the creation of new forms of disadvantage. (FL)

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Specialised Information and Global Interdependence

Problems of Concentration and Access

A Background Paper

prepared by

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Contribution to Discussion Session

Tuesday, 11 September 9:00 - 11:00

"PERMISSION TO REPRODUCE THIS MATERIAL IN MICROFICHE ONLY HAS BEEN GRANTED BY

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TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."

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The inequality of access to specialised (technical and non-technical information) in North-South relations has a major effect on the outcome of negotiations vital to developing countries. Economic and political leverage among industrialised countries is partly based on the concentration of information and knowledge in those countries, and principal transnational firms. Information is a product which can be acquired at a cost, and a resource which affects the capacity for decision-making at the national level as well as the capacity for bargaining in the international context. Differential accessibility to information can be a central element in the world's income determination, among other things. Research on present stocks and flows, including new technological capacity will lend understanding to features of concentration and problems of access globally.

The locus of economic activity in "post industrial" societies is shifting from manufacturing of objects to the handling of information and symbols. The sharpest aspect of competition may in future be as much based on information and knowledge as on capital and production. Although the information and knowledge sector in industrialised countries has in recent years become an important scholarly concern,(1) there has been to date no systematic consideration of problems of

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(1) Marc Uri Porat, The Information Economy: Definition and Measurement, U.S. Dept. of Commerce, Office of Telecommunications, May 1977., estimated that in 1967 46% of U.S. GNP is in information related activities, accounted for more than 40% of the work force (1970) and earned 53% of all labour income (1970).

John McHale, The Changing Information Environment, London Paul Elek 1976 assesses the information impact in qualitative terms in various sectors.

access and scarcity as they affect the international bargaining process.(1) It has often been said that world politics is changing very rapidly but conceptual paradigms have not kept pace. Information concentration in the capitals of the North, and in sectors such as finance, commodities and marketing of manufactured goods, places the negotiators from developing countries at a serious disadvantage. One of the greatest difficulties they face is not only one of scarcity and access in one-off situations but the build up of expertise and infrastructure at national or inter-governmental level which will serve their interests on a continual basis.

What is known or can be readily obtained in industrialised countries about resources, weather, technology or market conditions, or indeed about information itself enhances their leverage in the negotiation process. Much of this information

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(1) A.G. Oettinger et al, High and Low Politics of Information Resources for the 80s. New York, Ballinger 1977, discusses global strategies of interdependence based on technical facility without much consideration of the asymmetries of information and power contained in that interdependence.

A three-year research project, "The Political Economy of Information in the North-South Negotiating Process" based on three sectors of negotiation (minerals, finance and telecommunications) has recently been launched at the IDS. Information on that project can be obtained from the author.

which is gathered and systematised for retrieval is not available outside its storage point. In the industrialised countries, universities and research institutions as well as privately financed research and development give public and private decision-makers considerable advantage in their capacity to bargain, and may even dictate the parameters of the negotiating environment.

The manpower and expertise marshalled by industrialised countries in preparation for GATT negotiations or the WARC 1979, for example, far outpaces that which is available to developing countries.(1) In bargaining terms, there is considerable concern that the lack of information resources in the South in inter-governmental negotiations makes the bargaining process untenable, leads to the formulation of "political positions" in the absence of technical preparedness, or jeopardises the advantages previously achieved by the incapacity to sustain and specify negotiating

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(1) The team preparing the U.S. position for the GATT negotiations has been estimated at 160, and for the WARC a conservative estimate of 930 (including only government employees) was estimated by the F.C.C. Chairman in 1977, U.S. Senate Foreign Relations Committee, "The New World Information Order", November, 1977.

positions in meetings which take place at certain intervals. There is an analogy here (as yet unexplored) with the early years of labour/management collective bargaining.

The international economic and political system has emerged in recent decades from a series of closed systems to contractual relations. Political independence and even partial delinking from the transnational economic system through nationalisation has changed the environment of information need and access. In the case of newly independent countries, pursuing economic policies based on their own interests, there are new information requirements, which imply the development of new information systems and means of interaction.

Yet, part of the weakness of developing countries is often the lack of knowledge of where to look for the required information, some of which is publically available.(1) In firm to government negotiation, timing is often crucial and expertise is brought in to advise on specific negotiation. Although an expert adviser may provide more information than is on his specific brief,(2)

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(1) Library support in specialized fields is poor in most developing countries and use of international information and data resources is often not effective. UNIDO, for example, produces guides to information resources on subjects like industrial quality control and the machine tool and fertiliser industries, but it is not clear how many of these are available in the libraries of countries concerned.

(2) Some advantages and limitations of the outside adviser are explored in C.J. Lipton "Government Negotiating Techniques and Strategies", Paper 8, United Nations Centre for Transnational Corporations, N.Y.

the national government may not be able to retain or build further on the information required. Thus, even if the information were made available it is possible that its maximal use would be further inhibited by the lack of need articulation at the national level and infrastructural supports capable of making efficient use of it. The problem is therefore not only one of international imbalance and inequality but of the assessment of requirements, expertise and institutional arrangements in the national context. The lack of adequate assessment of present needs and capacity or the study of future needs puts a particularly dramatic twist on certain inter-governmental negotiations in which future disadvantage may be negotiated now, especially with regard to scarce resources. Energy, space and the spectrum are good examples of these.

At the same time as the international negotiating environment has altered from closed to open/contractual systems, one of the most major changes in "post-industrial" societies has been the shift in investment to information related industries. This has increased the power of those countries which possess the expertise, knowledge and information capacity. European countries, for example are concerned about their access both to technology and channels of telecommunications in the face of U.S. hegemony. Some of the issues considered by the OECD are also relevant to developing countries, including transborder data flows, investment, planning, inter-governmental co-operation, manpower training and the assessment of future requirements.(1)

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(1) OECD, Information, Computer and Communications Policy Unit, Symposium on Transborder Data Flows and the Protection of Privacy, Vienna, September, 1977, Information for a Changing Society: Some Policy Considerations, 1971, Education and Training of Information Specialists for the 1970s, 1973, Information in 1985: a Forecasting Study of Information Needs and Resources, 1973.

The Information Society: National and International Issues

There is a growing literature which explores the economic and social implications of the centrality of information to advanced industrial societies. Statements on the information base of the economy,[1] some of which are controversial, and the changes it is likely to entail in terms of resources and power focus attention usually on the domestic environment. Daniel Bell's concept of "post-industrial" society[2] is based partly on the growing importance of the tertiary sector and alteration of the hitherto dominant mix of resources of capital, labour and energy to the new use of information and organisation of the flow of knowledge. As early as 1970, concern was raised about its unique dependence upon the compilation of theoretical knowledge (Bell) the potential paralysis of societies over a plethora of facts without obvious paradigms for understanding it (McGeorge Bundy), or the value systems of a former era which cannot keep pace with technological change (Herman Kahn)[3]. The development of computer technology has intensified this trend: there is concern

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(1) Following the work done by Porat on the United States, the Information, Computer and Communications Policy Unit of the OECD have done similar calculations for other OECD countries. The inclusion of the educational sector in the calculation of the "information economy" is along with others a subject for discussion.

(2) The Coming of Post-Industrial Society, London: Heinemann 1974. A recent critical review of Bell, Dahrendorf and other "modern improvement theorists" may be found in J. Gershuny, After Industrial Soceity? The Emerging Self-Service Economy, London: Macmillan, 1978.

(3) From the U.S. House of Representatives, Committee on Science and Astronautics, The Management of Information and Knowledge, 1970.

about the future patterns of employment, given the potential for off-loading onto automated control large areas of production and services. In relation to management systems based on information, it has been underlined that the scarce resource is not information but human attention(1). There is also a growing literature on the control of privacy and personal vulnerability or the loss of security through the uncontrolled concentration of information in certain institutions(2). In political terms, it is felt to raise the possibilities of the formation of new constituencies around changing issues and priorities which will present a challenge of governance in older institutions and power centres(3). Many of these tensions in society have global reverberations and in a certain sense the changing model of the domestic political environment is directly analogous to changes internationally. But much more attention is awarded to the political implications of information access and policies at the national level.

In recent years, a number of studies have examined imperfections in technology markets, the dependence of developing countries on imported technology, the inappropriateness of much of which is available to these countries. Rather less attention has been devoted to the more general question of market information and the

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(1) Herbert A. Simon Administrative Behaviour, 1976 edition p. 294. This could be applied to the problems of the utility of most data banks.

(2) Noted more than a decade ago in M. Shubink, "Information, Rationality and Free Choice in a Future Democratic Society, Daedalus, Vol. 96, 1967.

(3) McHale op.cit. pp. 78-87.

basis of which new types of arms length systems of exchange depend[1]. While the centrality of information to the functioning of economic systems ought to be given more prominence, a review of the concepts and assumptions used in the literature of economic theory, particularly in relation to risk, uncertainty and the economics of search do not address themselves to some of the complex qualitative issues involved in differential access and use of information in the international negotiation.[2]

The structure of the modern transnational corporation is information dependent[3]; its "appropriability" of information[4] being perhaps as important as its research and development capacity and the control it exercises over markets and technology. These corporations are dependent on multinational computer systems to increase their manoeuvreability in their relationships with governments, suppliers and customers. It is acknowledged in the business

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(1) G.K. Helleiner World Market Imperfections and the Developing Countries, Overseas Development Council, Washington D.C. Occasional Paper No. 11, May 1978, pp. 11, 12.

(2) R. Cruise O'Brien and G.K. Helleiner, "The Political Economy of Information in a Changing International Economic Order", forthcoming.

(3) Productive knowledge, rather than capital has become perhaps a more important element in the operations of such firms. C.V. Vaitsos, "The Visible Hand in World Production and Trade: Corporate Integration", unpublished paper, Institute of Development Studies, June 1979.

(4) Stephen P. Magee "Information and the Multinational Corporation: An Appropriability Theory of Direct Foreign Investment", in J.N. Bhagwati, The New International Economic Order: the North-South Debate, Boston, MIT Press, 1976, pp. 318-319.

literature that these systems will enhance their power and influence in relation to governments and will widen the gap between rich and poor nations[1].

Modern telecommunications systems have evolved under U.S. leadership, and specifically in response to the needs of transnational corporations and defense surveillance. U.S. defense and enterprise depends on a system of "free flow" of information and open borders[2]. The reduction of non-technical barriers like tariffs on 'alternative voice-data circuits' has led to the immense growth of private carriers since the end of the 1960s upon which many forms of transnational enterprise (and business consortia) are dependent. These tendencies have led certain specialists to ask whether the information policy making process at the international level has been able to deal adequately with technological breakthroughs which promote interdependence[3]. Few have asked the basic question - in whose interests and at what cost?

Recent research and writing on international relations has been trying to improve on the 'realist' school which dominated thinking in the 1950s and 1960s by developing models of complex interdependence[4] which give new prominence to interaction based

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(1) B. Nanus "Business, Government and the Multinational Computer" Columbia Journal of World Business, Spring 1978, pp. 20, 24.

(2) Jonathan F. Gunther, The United States and the Debate on the World Information Order, Academy for Educational Development, Inc., Washington, 1978 and William H. Read "Foreign Policy: the High and Low Politics of Telecommunications in Oettinger, et al. op.cit. 197-200.

(3) Oettinger op.cit. Introduction.

(4) Robert O. Keohane and Joseph S. Nye, Power and Interdependence: World Politics in Transition, Boston, Little Brown, 1977, esp. Chapter 2.

on "low politics" rather than pre-eminent attention to military security and force. Scholars who favour this particular approach have been careful to point out the difference between their positive use of the term "interdependence" and that of some policy makers who use it to buttress particular prescriptions through resort to a symbolism which suggests that conflicts of interest are passé.(1) The concept of 'asymmetric interdependence' allows for reciprocal interaction which is not based exclusively on mutual interest but nevertheless results in a mutually acceptable resolution of conflict. "Less dependent actors", we are told "can often use the interdependent relationship as a source of power in bargaining over an issue and perhaps to affect other issues".(2) This can be formulated as a simpler proposition: that the more powerful can use the interdependent relationship as a further source of power. New forms of interdependence (whether asymmetric or not) in areas of "low politics" may be seen as justifying the present systems of interaction in which the 'rules of the game' or the parameters of negotiation are effectively determined by the more powerful actors.

It may therefore be essential to rethink the model: the new agenda item of information in world politics suggests the necessity of analytical distinction according to the capacity of the actors in an intedependent situation. That is, the inequality of access to information adds a new dimension to asymmetry which may be originally based on political and economic divergence: it is a divergence in

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(1) Fred G. Bergsten et al. "International Economics and International Politics: A Framework for Analysis", International Organisation Vol. 29, No. 1, Winter, 1975 pp. 20-21.

(2) Keohane and Nye, op.cit., p. 11.

the capacity of the parties involved. Having better access to and control of information in a negotiating situation is an important factor of power. Differential capacity in a situation of asymmetric interdependence gives prominence to the value of information as an independent variable affecting the outcome of negotiations.

Information Access and International Negotiation: Problems for Developing Countries

The importance of information access to the realisation of the principal aims of the New International Economic Order has already been recognised. The locus of debate on this issue and the political or technical form it is likely to take are still in doubt. Discussions on the reform of the international monetary system, or on the allocation of resources of the sea and space are often pre-empted by the more powerful nations, leaving the developing countries with only a "Yes, but ....." role or encouraging them to politicise issues as a substitute for the technical arguments which they may not possess. Such acts have been regarded as "obstructionist" by the more powerful actors in international bargaining but may, with the hindsight of nearly a decade of North-South interaction, be seen instead as having been quite astute. Might they now not be considered as (variably effective) delaying tactics which gave much needed time for the preparation of more well-informed and effective positions?

Mutual lack of confidence in the present global negotiating environment may be in part explained by differing access to specialised information. It is in the interests of both the North

and the South that serious consideration be given to this issue in the coming years. The limitations of the market model or free flow of information has already been recognised with reference to the structure of ownership and control, problems of access and the vastly different resources of the data rich and data poor. Two principal implications lie in rapid technological changes in the information sector and institutional alternatives to the current negotiating environment.

Will these new developments increase the already substantial potential for centralisation and control of information in traditional world centres thus enhancing power and leverage?

Will these developments be able to be marshalled by developing countries (individually or in regional or sectoral groups) in order to decrease their present information disadvantage?

Answers to these questions can only be related to a consideration of the time factor involved and the capacity to relate information systems to specific negotiating requirements. In the short-run in certain sectors like banking the power of information exchange among consortia of large private banks(1) vastly outweighs the access of frequent and infrequent borrowers from the South.

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(1) SWIFT, the Society for Worldwide Financial Telecommunications serving 500 European and North American banks for the purpose of improving the transmittal of international payments messages became operational in 1977. By 1978, it was expected to transmit 300,000 messages per day. William H. Read, "Foreign Policy: High and Low Politics of Telecommunications", in Oettinger et al. op.cit. 1977, p. 225.

For a succinct and informative elaboration on the importance of private data networks, see H.P. Gassman, "Data Networks: New Information Infrastructure, The OECD Observed, Paris, No. 95, November, 1978.

The general trend of technological changes in information are:-

- Microprocessors reduce cost
- Improved information systems enhance volume and specificity
- Telecommunications systems, including satellites, facilitate transmission.

In the longer run, technological change and its effect of cost reduction may be able to reduce the data dependency of developing countries and facilitate the efficiency of marshalling information resources in relation to their interests.

As in the case of information generally, the greatest problem in the improvement of information access through electronic means may be in the knowledge and organisational supports required to make use of the information system.

There is a growing literature on the uses of information technology and development[1], but little of it is related to the context of international negotiation. With the substantial reduction of hardware cost, it is possible that expertise or electronically produced software, whether bought in or developed locally, will be the greatest cost? Are there enough incentives for it to be made commercially. Can it be adapted from other systems? Can it be obtained from non-commercial sources?

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(1) Ithiel de Sola Pool et al., MIT Research Programme on Communications Policy, Low-Cost Data and Text Communication for Less Developed Countries, 1976 G. Russell Pipe and A.A.M. Veenhuis, National Planning for Informatics in Developing Countries, Mouton, 1976.

A powerful impetus to the rapid accumulation of information systems in developing countries may be seen to come from the moves to promote self sufficiency in computer technology and to add informatics to the agenda of the New International Economic Order[1]. The potential danger of such general initiatives is the mistaken assumption drawn from other economic sectors that telecommunications and information systems will in themselves promote growth and development, the only problem being their rapid acquisition[2]. The use of high technology in other sectors has frequently produced new forms of dependence rather than enlarging independent capacity. It has even generated new dimensions of inequality and poverty, when weighed against the opportunity cost of alternative investment. Developing countries cannot ignore changes in information production, but will they enter this field with wisdom derived from what has preceded it?

Informatics cannot in itself reverse the traditional concentration of knowledge and expertise in capitals of the North and major transnational firms. As the cost of hardware production is reduced through technological change, there is already evidence for concern that information systems will be "unloaded" on developing countries in return for lucrative software contracts. Among the questions raised in industrialised countries are planning and professional capacities in relation to the electronic processing and storage of information. Sometimes these are "teething problems", sometimes

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(1) Intergovernmental Bureau of Informatics, Informatics in the Service of the New International Economic Order, July 1978.

(2) "Serving the Information Needs of Developing Countries" in a Background Paper by Ithiel de Sola Pool, OECD Informatics Studies 11, Conference on Computer and Telecommunications Policy, Paris, 1976, pp. 290-291.

much more fundamental ones involving large financial loss or a weakening of decision-making capacity. Such problems are even more costly for countries of limited income.

Informatics may not at all aid the integration of technological change at national or international levels. It may create a new form of dualism in developing economies generated by professional engineers and systems analysts who define their own professional development in terms of new gadgetry and new prestige expenditure. There is a risk of producing codifying and storing false information if the data base of national statistics remains as poor as it is in many developing countries. There is a risk of reducing employment potential by promoting electronic information processing in service sectors or in banking or municipal government. And it is not at all apparent that the new forms of information will be any more reliable.

There are a host of intergovernmental issues which are raised by changes in information production and transmission not least of which is transborder data flows. An awareness of these issues has been created among developing countries which as yet lack the organisational capacity for long-term consideration. For the present the Intergovernmental Bureau of Informatics (IBI) has provided a surrogate forum and offered a venue for the discussion of some of these issues.

Conclusion

Suggestions for strengthening information sharing and expertise are timely, especially in view of the call for the establishment of new organisational capacity for the South based on economic and technical cooperation[1]. In the immediate future the bargaining capacity of countries will be weakened by the lack of political initiative for information sharing on a bi-lateral or multi-lateral basis or the lack of a Secretariat (like the OECD) to serve their information needs in a systematic way. At both national and intergovernmental level an enlargement of information capacity in the context of an organisation for the South may turn this situation around. But serious consideration is required concerning where and how electronic resources can be most effectively deployed. The present enthusiasm for informatics claims too much, both in terms of national planning and intergovernmental cooperation. Information systems themselves will not promote growth and development, nor will they strengthen the South in bargaining terms. Scepticism and critical reflection now may direct resources where they will be best served and forestall the creation of new forms of disadvantage.

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(1) Shridath S. Ramphal, "Not by Unity Alone: The Case for Third World Organisation", Third World Quarterly, London, Vol. 1 No. 3, July 1979.